

The experience of university students in classes with Universal Design for Learning

Dayana Araya Vergara¹[\[https://orcid.org/0000-0002-8283-0942\]](https://orcid.org/0000-0002-8283-0942) and Carola Cerpa Reyes²[\[https://orcid.org/0000-0002-6180-5262\]](https://orcid.org/0000-0002-6180-5262)

¹ University of Atacama, Copayapu Ave. 485, Chile

² Catholic University of the North, Larrondo Ave. N°1281, Chile
dayana.araya@uda.cl

Abstract. This study aims to analyze the perception of university students about managing diversity approach in classes using Universal Design for Learning. The study is based on qualitative methodology, phenomenological design and non-probabilistic, purposive and convenience sampling. A total of 20 semi-structured interviews were carried and the data were analyzed by content analysis, based on grounded theory, covering the phases of open and axial coding. Students perceive that the use of multiple means of representation improves access to the content; the multiple means of expression match effectively to their abilities, styles and learning preferences; they recognize the teacher's responsibility in generating an environment of respect for heterogeneity, which is fundamental in addressing and valuing diversity; finally, the use of information and communication technologies complements the learning process, but technical failure hinder accessibility. Based on the results of the study, it is concluded that Universal Design for Learning addresses diversity by promoting equal opportunities for access, expression and participation, enhancing the learning process.

Keywords: University Student, Learning Processes, Equal Educational Opportunities.

1 Introduction

University Education progresses towards inclusion and recognition of diversity, access and equal opportunities (Díez and Sánchez, 2015) based on international agreements that establish the dignity and rights to education, as stated in Article 26 of the Universal Declaration of Human Rights (United Nations, 1948).

In Chile, there has been legislation on inclusion in University Education and currently there are laws that establish provisions on inclusion, accessibility, participation and equal opportunities in education (MINEDUC, 2018).

Fernández and Echeita (2020) propose that inclusive education offers effective educational responses to students, regardless of their characteristics or personal or social background. This requires the use of methodologies such as Universal Design for

Learning (UDL) that transform teaching and learning practice for the benefit of all students (Craddock and McNutt, 2017).

2 Theoretical Framework

UDL has been established as a scientifically valid framework for improving the learning process that allows flexibility and accessibility to the curriculum (Gutierrez- Saldivia et al., 2020). According to Orellana et al. (2022), this methodology provides concrete guidelines that can be applied as classroom actions in any educational context, minimizing the need for specific adaptations.

This model has three fundamental principles, with guidelines and suggestions for practice (Alba et al., 2015). Principle I, providing different means for perceiving information, consists of the guidelines: different options for perceiving information, multiple options for language and symbols, and options for comprehension. Principle II, providing multiple means for language and symbols, contains the guidelines: multiple physical means of action, options for expression and fluency of communication, and options for executive functions. Principle III, providing means for comprehension, integrates the guidelines: options for engaging interest, options for sustaining effort and persistence and, options for self-regulation (Alba, 2016).

3 Methods

This research is conducted under interpretive paradigm (Ricoy, 2006), qualitative approach (Bisquerra, 2009) and phenomenological design (Creswell, 2009). Participants were selected using a non- probabilistic (Marín, 2012), purposive (Arias, 2012) and convenience sampling (Hernández et al, 2010). The sample is n=20 students of Early Childhood Education career of a University in the Atacama Region, who attended classes with UDL methodology during the year 2022. Semi-structured interviews (Gale et al., 2017) were applied, addressing three dimensions: experiences of access to learning content in classes, experiences of expression of learning in classes and experiences of engagement in class activities.

The data are interpreted using content analysis. This process is developed in three operations: reduction of information, exposition of data and extraction or verification of conclusions (Bardin and Suárez, 2002).

4 Results

Five emerging categories are generated: forms of presentation of information, forms of expression of learning, feedback of learning in class, conducive learning environment, and use of information and communication technology. These categories account for

the students' perceptions of the approach to diversity in the classroom implementing UDL.

Students perceive that the various forms of presentation used in classes (written, oral, printed and digital) facilitate access to the content and understanding of the information. The fact that personal preferences are recognized (oral, written, kinesthetic) to express ideas, debate and ask questions in an active way, broadens the opportunities to show the learning achieved, establishing internal relationships on the information received.

Learning feedback allows for continuous review of class performance, with group and individual monitoring, and generates an open dialogue between teacher and students, which is perceived as a favorable strategy that is linked to conducive learning environment, characterized by trust and motivation for participation based on positive verbal reinforcement.

On the other hand, the relevance of technology and digital media is perceived as a support for the delivery of information and participation in classes, however, the slowness of the CPU and slow Internet connection become barriers.

5 Discussion

Students perceive that UDL improves the representation of information as pointed out by Roski et al. (2021), providing accessibility to the curriculum. The positive perception of the different ways of expressing learning according to their particular preferences shows that this model recognizes individual differences (Alba, 2016). The feedback and the conducive environment for learning strengthen the student-teacher relationship, which reflects what Sánchez (2022) points out regarding the fact that this model focuses on the emotional and social aspects. Although UDL considers technology and digital media to be used by the majority (Tobón and Cuesta, 2020), when there are technical failures, they become barriers (Alba, 2016).

6 Conclusions

UDL is an effective strategy for addressing diversity in the classroom, since it facilitates access to content and the expression of learning, which has a positive impact on student motivation. The figure of the teacher is highlighted through the process of continuous feedback, which improves the classroom climate and the quality of learning. Meanwhile, technical failures become barriers.

7 Limitations and Future Research

In order to provide deeper description, it is suggested to complement data with the implementation of UDL in other Higher Education contexts and focused on other elements

such as assessment strategies. Due to the youth of approaches such as UDL, there are not too many studies about its application at Universities (Díez and Sánchez, 2015).

References

- Alba, C. (2016). *Diseño Universal para el Aprendizaje: Educación para todos y prácticas de enseñanza inclusiva*. Morata S. L.
- Alba, C., Zubillaga, A. y Sánchez, J. (2015). Tecnologías y Diseño Universal para el Aprendizaje (DUA): experiencias en el contexto universitario e implicaciones en la formación del profesorado. *Revista Latinoamericana De Tecnología Educativa - RELATEC*, 14(1), 89-100. <https://doi.org/10.17398/1695-288X.14.1.89>
- Arias, F. (2012). *El proyecto de investigación*. Sexta Edición. Editorial Episteme.
- Bardin, L. y Suárez, C. (2002). *El análisis de contenido*. Akal.
- Bisquerra, R. (2009). *Metodología de la investigación educativa*. La Muralla.
- Cortés, M., Ferreira, C. y Arias, A. (2021) Fundamentos del Diseño Universal para el Aprendizaje Desde la Perspectiva Internacional. *Revista Brasileña de Educación Especial*, 23. 269-284. <https://doi.org/10.1590/1980-54702021v27e0065>
- Craddock G. y McNutt, L.(2017) Universal Design as a Transformative Agent in Education for All Learners. *Revista SeriesStudies in Health Technology and Informatics*, 977-984. <https://dx.doi.org/10.3233/978-1-61499-798-6-977>
- Creswell, J. (2009). *Research Design Qualitative. Quantitative, AND Mixed Methods Approaches*. University of Nebraska-Lincoln. [https://Creswell-Cap-10.pdf\(ceil-conicet.gov.ar\)](https://Creswell-Cap-10.pdf(ceil-conicet.gov.ar)).
- Díez, E. y Sánchez, S. (2015). *Diseño Universal para el Aprendizaje como metodología docente para atender a la diversidad en la universidad*. Instituto de Ciencias de la Educación de la Universidad de Oviedo.
- Fernández, M. y Echeita, G. (2020). Desafíos sociales y educación inclusiva. *Acción y Reflexión Educativa ICASE*. Universidad de Panamá.
- Gale, T., Mills, C. y Cross, R. (2017). "Socially inclusive teaching: Belief, design, action as pedagogic work", *Journal of Teacher Education*, vol. 68, núm. 3, pp. 345-356. <https://doi.org/10.1177/0022487116685754>

- Gutiérrez-Saldivia, X., Barría, C. y Tapia, C. (2020). Diseño universal para el aprendizaje de las matemáticas en la formación inicial del profesorado. *Formación universitaria*, 13(6), 129-142. <https://dx.doi.org/10.4067/S0718-50062020000600129>
- Hernández, R., Fernández, C. y Baptista, M. (2010). *Metodología de la investigación Quinta edición*. Mc Graw Hill.
- Marín, F. (2012). *Investigación científica. Visión integrada e interdisciplinaria*. https://eduvirtual.cuc.edu.co/moodle/pluginfile.php/612221/mod_resource/content/0/InvestigacinCientficaVisinIntegradaeInterdisciplinaria-Versinescaneada1.pdf.
- Ministerio de Educación de Chile [MINEDUC]. (2018). *Plan de fortalecimiento Universidades Estatales 2018*. Universidad de la Frontera.
- Naciones Unidas (1948). *Declaración Universal de Derechos Humanos*. Adoptada y proclamada por la Asamblea General en su resolución 217 A (III), de 10 de diciembre de 1948. Naciones Unidas
- Orellana, A., Arguello, G., & Kanzki-Veloso, E. (2022). Online Presentations with PowerPoint Present Live Real-Time Automated Captions and Subtitles: Perceptions of Faculty and Administrators. *Online Learning*, 35. <http://doi:10.24059/olj.v26i2.2763>
- Ricoy, C., (2006). Contribución sobre los paradigmas de investigación. *Educação*, 31(1),11-22.
- Roski, M., Walkowiak, M. y Nehring, A. (2021). Universal Design for Learning: The More, the Better? *MDPI Education Sciences*. <https://dx.doi.org/10.3390/educsci11040164>
- Sánchez, S. (2022). Diseño Universal para el Aprendizaje. *Revista latinoamericana de educación inclusiva*, 16(2), 17-20. <https://dx.doi.org/10.4067/S0718-73782022000200017>
- Tobón, I., y Cuesta, L. (2020). Diseño universal de aprendizaje y currículo. *Sophia*, 16(2), 166-182. Epub February 11, 2021.<https://doi.org/10.18634/sophiaj.16v.2i.957>